The Gulf Coast Rumbler

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Inside this issue:

Meet Jeffrey Cupo

By **NWS NEWS** Team

Traveling to new locations is nothing new for **Jeffrey Cupo**. He has visited five continents and nearly every state in the United States. He enjoys the thrill of experiencing new cultures. And, although he's unlikely to experience culture shock when he begins his new assignment as Meteorologist-In-Charge of the National Weather Service Mobile, AL, Weather Forecast Office, he said he is looking forward to working with his new team. "I am very excited to be working with such a talented group of individuals at the NWS Mobile," said Cupo, who took over as head of the Mobile forecast office in early February.

Born in Staten Island, New York, Cupo developed his passion for the atmosphere at the age of six when Hurricane David blew through the New York area in 1979. He has earned Meteorology degrees from Rutgers University and Florida State University. He started his career in the 1990s with the NWS contractor Planning and Research Corporation, or PRC. He trained NWS forecasters in the use of the Advanced Weather Interactive Processing System, or AWIPS, during its implementation in our NWS modernization.

Cupo's opportunity to join the NWS came the same year after starting at PRC. As a techniques development meteorologist with the NWS Meteorological Development Laboratory, he further honed his skills by contributing to the refinement, development, and implementation of the Local AWIPS MOS program, also known as LAMP. This time, Cupo settled in Silver Spring, Md., but his home base changed two and a half years later, when he moved to the NWS Storm Prediction Center in Norman, Okla., and then on to the Midland, Texas, and San Juan, Puerto Rico Weather Forecast Offices as science and operations officer.

Not one to stay in one place, Cupo comes by way of Oklahoma City, Okla., where he served as MIC and supervisor of the NWS training office

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Jeffrey Cupo (continued)

"The NWS Mobile is a unique office that is responsible for many different facets of public support"

at the Federal Aviation Administration Academy.

Fittingly, he provided weather training to air traffic controllers and administered NWS certification examinations for pilot weather briefers and tower visibility observers.

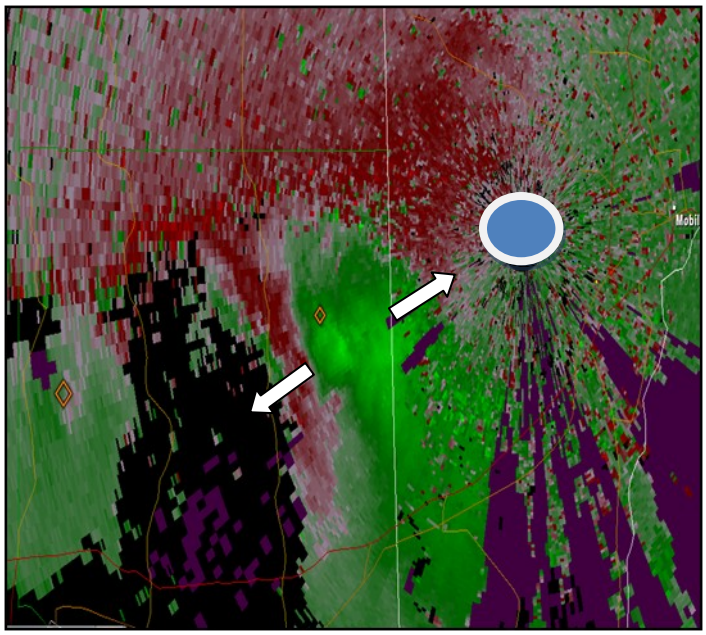
"The NWS Mobile is a unique office that is responsible for many different facets of public support," Cupo said, "The highly diversified weather and marine pattern that affects the Gulf region lends itself to a broad range of decisional-based services for enhanced interpretive support. It's unique position, serving the tri-state region of Alabama, Florida, and Mississippi, offers up many challenges to highlight true collaboration among all partners. It is this blend of responsibility that drew me to the office."

Cupo also added, "I had the pleasure of working with some members of the team during the Deepwater Horizon oil spill crisis over the summer and their solution-based perspective and insight into the disaster really impressed me."

When Jeff is not in the office, he enjoys bowling, tennis, hiking, and of course travelling.

Bill Proenza, director of the NWS Southern Region, welcomed Cupo by noting, "Jeff brings quite a wide range of meteorological, technical and leadership skills to his new position. His appointment will help insure the citizens, visitors and marine community in and around Mobile continue to receive the best possible weather forecast and warning services."

What is a Wet Microburst?



Our region is certainly no stranger to wet microbursts. You may have noticed that sudden "rush" of cool thunderstorm downdraft air associated with gusty winds, heavy rainfall and sometimes frequent lightning! A wet microburst is an intense thunderstorm downdraft producing damaging severe thunderstorm (58 mph or greater) winds on a small horizontal scale (usually less than about 2.5 miles). Figure 1 (left) illustrates a wet microburst producing a thunderstorm downdraft.

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Figure 1 (left) - Forecasters measure the intensity of wet microburst downdrafts by using Doppler radar (blue circle). Note the green (winds moving toward the radar) and red (winds moving away) colors.

What is a Wet Microburst? (continued)

Figure 2 below shows a developing wet microburst thunderstorm. The high reflectivity core shown (purple) is mainly composed of ice and super-cooled liquid droplets swept high into the thunderstorm. These particles and their charges play a huge role in thunderstorm electrification.

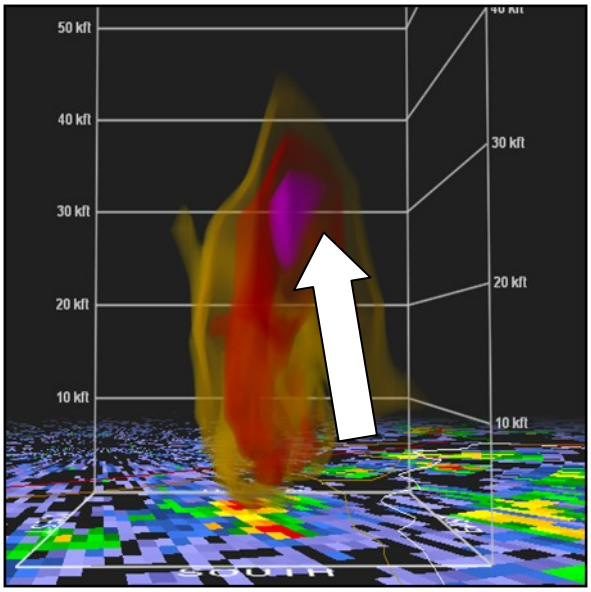

Figure 2 (left) - Note the intense radar reflectivity core (purple) being held aloft by a powerful developing summertime thunderstorm updraft (arrow).

Historically, wet microbursts have always been one of the toughest warning phenomenon to detect due to their rapid formation, their relative small scale, and the fact that many processes are occurring simultaneously within the cloud are unaccounted for.

The NWS in Mobile, AL has examined what could be done to better warn for wet microbursts locally. Here are a few things we have learned: **(1)** Local meteorologists now have "average" vertical temperature and moisture profiles to examine days when wet microbursts occurred versus those when they did not. In other words, forecasters assess the environment BEFORE thunderstorms form.

Results show differences are subtle – adding to the forecast challenge.

(2) When the first thunderstorm of the day erupts, it may not produce a wet microburst. However, subsequent thunderstorms forming perhaps minutes later on the first thunderstorm's outflow (what we call primer thunderstorms) may have a greater chance of producing a wet microburst since their predecessors moistened the local air mass. This does not always happen, but has been observed to occur numerous times. **(3)** More recently, forecasters have examined the evolution of these thunderstorms. The goal was to assess what type of gain in radar warning lead time may be yielded. **Figure 3** depicts the an "average" wet microburst core's evolution.

Note the very short time scale. The powerful updraft of these storms becomes radar detectable and produces a downdraft in as little as 10 minutes - leaving forecasters little time to warn between initial detection and subsequent damaging surface winds!

Having a few more minutes of lead time could save someone's life, but not unless the message is delivered clearly, effectively, and in enough time for someone to take appropriate action. In order to prepare the public, we identify the type of environment that might be supportive of wet microbursts twice daily (on the midnight shift and before early afternoon).

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What is a Wet Microburst? (continued)

On days when the environment is moderately or highly supportive of wet microbursts, we get the word out in our Area Forecast Discussion and Hazardous Weather Outlook (both text and graphical) products as well as web page headlines - all of which can be accessed on our web site. Despite the wind damage associated with this phenomena, however lightning remains the #1 thunderstorm-related killer in our forecast area! The best advice is, "*When Thunder Roars – Go In Doors!*"

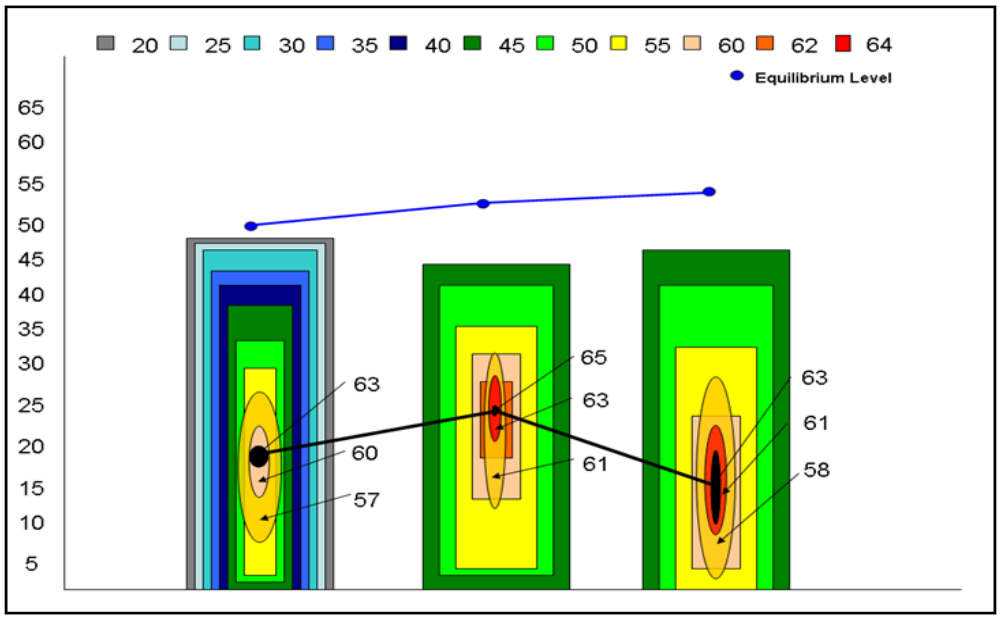

Figure 3 (left) - Development of a "mean" wet microburst averaged from well known wet microbursts occurring in our region. The middle graphic, labeled "Mature" shows a time when the highest radar reflectivity (numbers shown in dBz) extend to the highest levels in the thunderstorm cloud. Note that no more than 10 minutes elapse from beginning to end making radar warnings a challenge!

COOP Awards

John Campanius Holm Award

On Thursday, January 20th, the prestigious John Campanius Holm Award for 2010 was presented to Mr. Alden Davis of Coden, AL. Mr. Davis was born and raised in the Coden area, served as a U. S. Naval officer during World War II, and has operated the Davis Nursery in Coden since 1950. He has been the NWS COOP in Coden since September of 1989, providing daily reports of temperature and precipitation, even continuing his reports through the numerous tropical storms and hurricanes that have passed through the area during his time as an observer.

Above photo: The award was presented by Gene Jacobi (right), OPL, NWS Mobile and Keith Williams (left), HMT, NWS Mobile.

Photo courtesy of Jeff Garmon, WCM NWS Mobile.

The John Campanius Holm Award was named in honor of John Champanius Holm, a Lutheran minister who was the first person known to have taken systematic weather observations in 1644 and 1645 in the American Colonies.

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COOP Awards (continued)

Each year, 25 Cooperative Observers nationwide are honored with the John Campanius Holm Award for outstanding accomplishments in the field of cooperative observations.

50 Year Honored Institution Award

Right: Donna Lewis (center) accepts a 50 year Honored Institution Award—Riverside Wastewater Treatment Facility in Andalusia, AL. The award was presented by Keith Williams, an HMT, NWS Mobile. Water Treatment Facility employees pictured along with Williams and Lewis are (from left) Timmy Turner, Calvin Watkins, Robert Walker, Josh O'Neal, Tony Ballard, Bob Deloach, and Tony Wambles.

The photo courtesy of Michele Gerlach of the Andalusia Star News.

20 Years of Service Award

Right: Mr. Malcolm Eubanks (right) of Leakesville, MS., accepts his 20 year award from Keith Williams, HMT, NWS Mobile.

Left: A 20 year award was presented to Mrs. Dianne Harwell, COOP observer at Chatom, AL. Gene Jacobi, OPL, NWS Mobile.

15 Years Length of Service Award

Mr. Grimes began his service as a Cooperative Weather Observer in September of 1995. Photo courtesy of Kirk Caceres, NWS Mobile.

Left: Mr. Harold Grimes (left), of Pine Apple, AL, accepts his 15 year award from Keith Williams, HMT NWS Mobile, AL.

Right: Shirley Peavy, COOP weather Observer at Brewton 3 SSE AL, is presented with a 15 year award by Gene Jacobi, OPL at the NWS Mobile. Photo courtesy of Keith Williams, HMT NWS Mobile.

In 2006, Shirley accepted the John Campanius Holm award on behalf of the Peavy family, who have been observing the weather in Brewton since 1933.

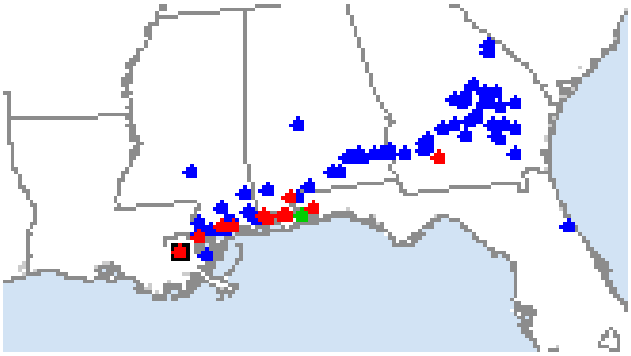
March 9th, Gulf Coast Tornado Outbreak and Flash Flood Event

By Kirk Caceres, Meteorologist

During the early morning hours of 9 March 2011, a squall line, with numerous embedded bowing structures, moved rapidly across the Central Gulf Coast Region and produced several tornadoes, moderate to widespread wind damage, extensive flash flooding, and some large hail one inch in diameter. Damage was observed from southeastern Louisiana to eastern Georgia on March 9th.

Interior southeastern Mississippi, southwestern Alabama, and the northwestern Florida Panhandle were in the direct path of this system, which began west of the WFO MOB county warning area during the pre-dawn hour and moved rapidly eastward into the northwest Florida Panhandle by early afternoon.

Notable confirmed and surveyed damage locations include Wiggins, MS (90 mph thunderstorm wind gust), Seven Hills-Grand Bay, AL (EF-1 tornado), Theodore, AL (EF-2 tornado), Silver Hill, AL (EF-2 tornado), McDavid, FL (EF-1 tornado) and Milton/Pace, FL (EF-0 tornado). Miraculously, there were some injuries, but no deaths occurred in association with this event.

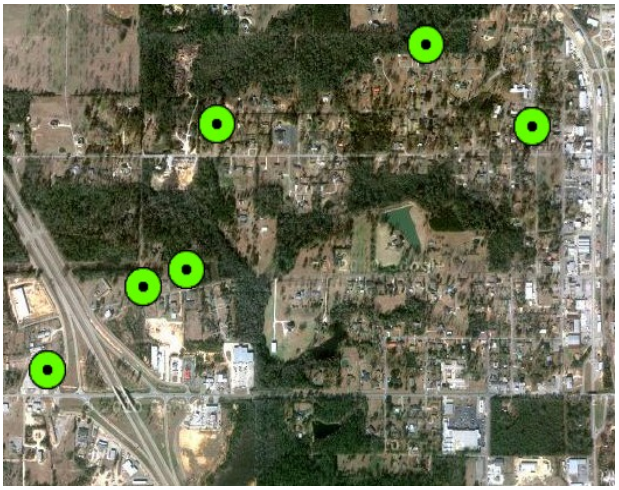


Summary of severe weather reports on March 9, 2011. Red dots are tornado reports, green dots are hail reports, and blue dots are straight-line wind reports.

Additionally, the event caused extensive flash flooding. Two different heavy rainfall maxima occurred during the 4 AM to 2 PM time frame. One rainfall maxima was located over the interior southeast Mississippi and southwestern Alabama (7-10 inches), and a second along the Alabama and northwest Florida coastal counties (3-5 inches).
On the morning of March 9th, a thunderstorm

Wiggins, MS
90 mph Thunderstorm Wind Gust

with winds up to 90 mph moved across Wiggins, MS. This thunderstorm caused wind damage across the city. The top of a service station canopy was peeled back in small sections and numerous trees were either uprooted or snapped. Several of the down trees caused damage to both homes and vehicles.



Above: Damage locations in Wiggins, MS.

Left: Large hardwood tree uprooted.

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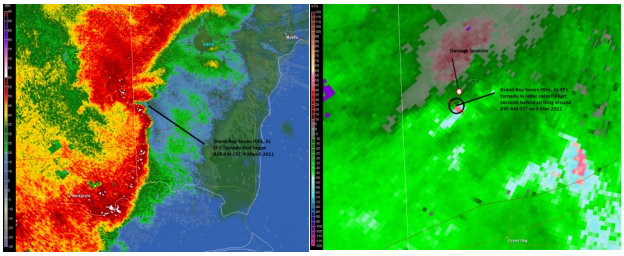
Tornado Outbreak and Flash Flood Event (continued)

Grand Bay, AL Tornado
EF-1 Tornado

A squall line moved across western Mobile and produced a small tornado in Grand Bay. This EF-1 tornado caused the collapse of walls on a small barn.



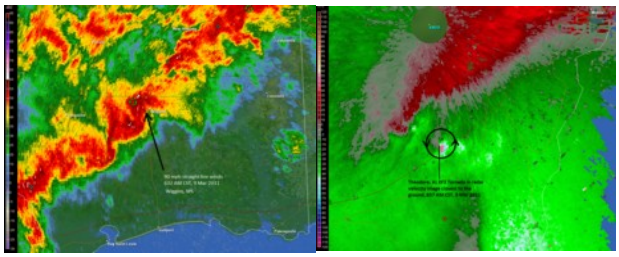
Above: Radar imagery of the tornado.

Left: Damage to a barn in Grand Bay, AL.

Above: The path of the Grand Bay, AL Tornado. This tornado was determined to be an EF-1 tornado (86 to 110 mph).

Theodore, AL Tornado
EF-2 Tornado

As the squall line continued to move eastward, a tornado developed across central Mobile county in Theodore. The tornado started as an EF-1 just west of Theodore-Dawes Road and snapped several trees and damaged the roof at the Food World shopping center. The tornado strengthened into an EF-2 as it reached the intersection of Old Pascagoula Road and Theodore-Dawes Road resulting in major damage to a restaurant, gas station, and to several businesses in a strip mall. Numerous glass windows and doors were blown out, Two large air conditioning units (weighing at least 800 lbs) were blown off a roof, and major structural damage occurred to a gas station and a hardware store. The tornado quickly weakened as it continued eastward along Old Pascagoula Road.



Above: Radar imagery of the tornado.

Left: Damage to Food World in Theodore, AL.

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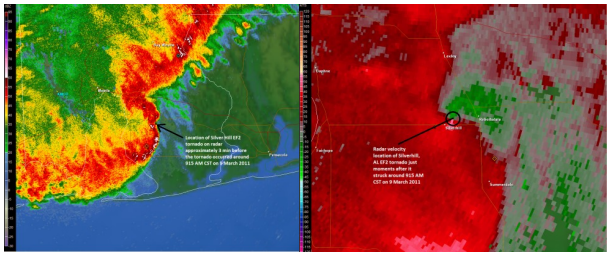
Tornado Outbreak and Flash Flood Event (continued)

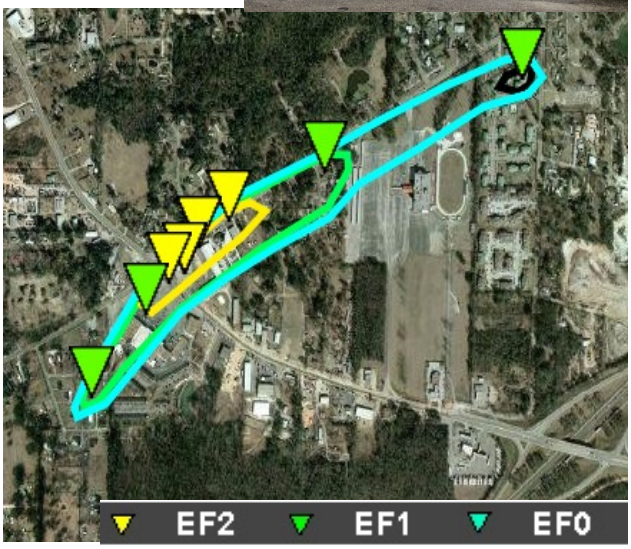
Left: Damage to a hardware store in Theodore, AL.



Above: Radar imagery of the tornado.

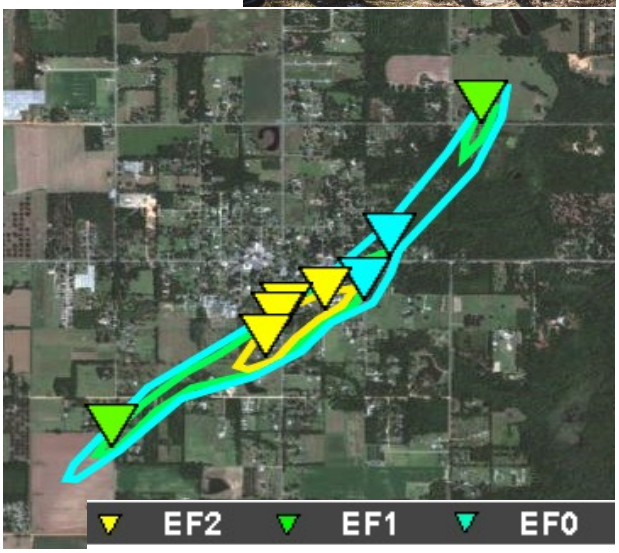
Right: Damage to a BP Gas Station in Theodore, AL.

Left: Damage to a house in Silver Hill, AL.



Above: The path of the Theodore, AL tornado. This tornado was determined to be an EF-2 tornado. Maximum winds of this tornado reached 130 mph.

Right: Snapped trees in Silver Hill, AL.



The tornado began to weaken as it headed northeast of Silver Hill. The maximum winds of this tornado reached 130 mph.

Silver Hill, AL Tornado
EF-1 Tornado

A tornado developed just west of Silver Hill, AL and moved northeast. The tornado blew out windows and damaged roofs on two homes. The tornado quickly strengthened into an EF-2 which resulted in damage to two more homes and a truck. Trees were also snapped along the path of the tornado.

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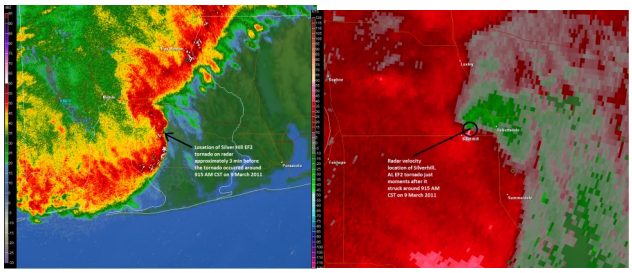
Tornado Outbreak and Flash Flood Event (continued)

McDavid, FL Tornado
EF-1 Tornado

This tornado developed over northern Escambia County near McDavid. The tornado snapped trees, which resulted in a tree falling down on a house. A chimney collapsed on a house and a porch was also damaged. Shingles were blown off one house and another house had a roof blown off. One outbuilding was destroyed. This tornado reached maximum winds of 105 mph.



Above: Radar imagery of the tornado.

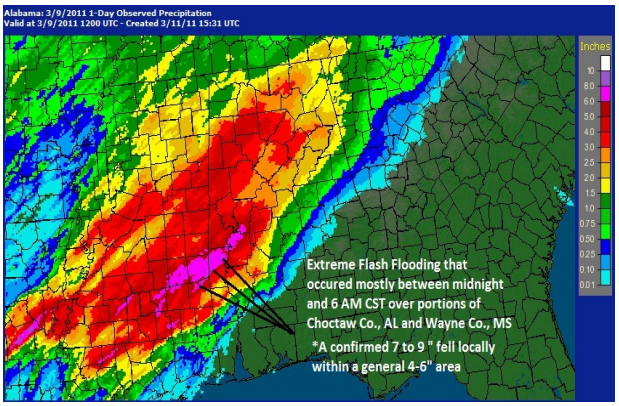
Left: Damage to a house in McDavid, FL.

Milton, FL Tornado
EF-0 Tornado

This tornado caused roof damage to three homes. The home that took the direct tornado circulation lost some roofing shingles and had the soffit and facia blown off . The tornado had maximum winds of 85 mph.

Wayne and Choctaw Counties
Flash Flooding

Flashing Flooding occurred over portions of Wayne County, MS and Choctaw County, AL during the early morning hours on March 9th. The flash flooding caused several roads to be closed including County Road 32 in Choctaw County where a bridge was washed out.



Winter Climate Summary and Outlook for this Summer

By Jack Cullen, Forecaster

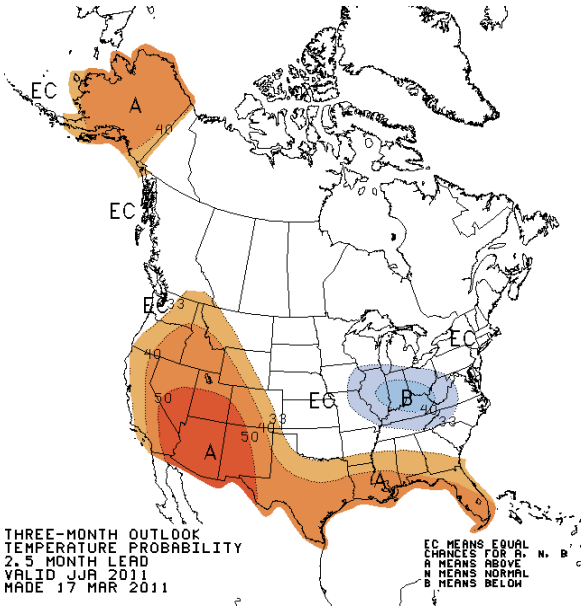
The Winter of 2010-11 was much colder and drier than normal across the central gulf coast. The average temperature was 49.8 degrees in Mobile which was 2.1 degrees below normal. This was also the 5th driest Winter in Mobile with only 7.71 inches of rain. That amount was 7.8 inches below the normal of 15.51 inches expected during December through February.

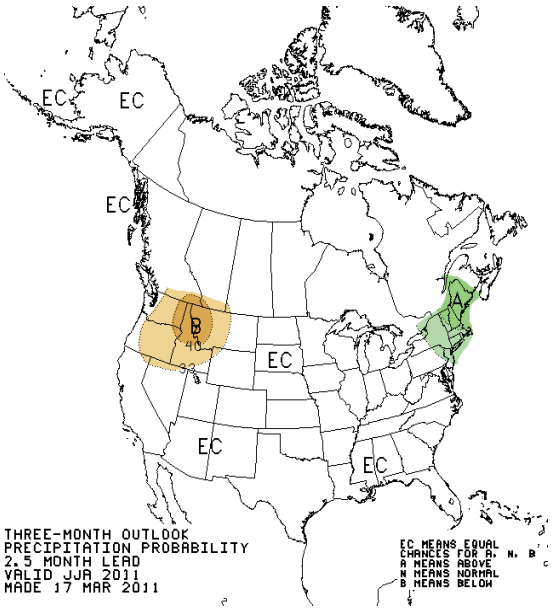
Pensacola's average temperature was 50.5 degrees, 3.2 degrees below normal. Rainfall was only slightly more in Pensacola, with a total of 8.59 inches. This was 5.4 inches below the normal of 13.99 inches.

The outlook for the Summer of 2011 is based on the weakening of the la Nina conditions across the equatorial Pacific. The current forecast calls for Neutral conditions to develop by June. The latest Summer forecast calls for above normal temperatures and equal chances of above, below or normal rainfall.

Several temperature records were broken this past winter. Mobile set a new record low on December 14th of 24 degrees. In February, Mobile set a new record high temperature of 80 degrees on February 19th. Pensacola set two new record highs in the month of February with 77 degrees on the 19th and 82 degrees on the 25th.

Summer Temperature and precipitation Outlook



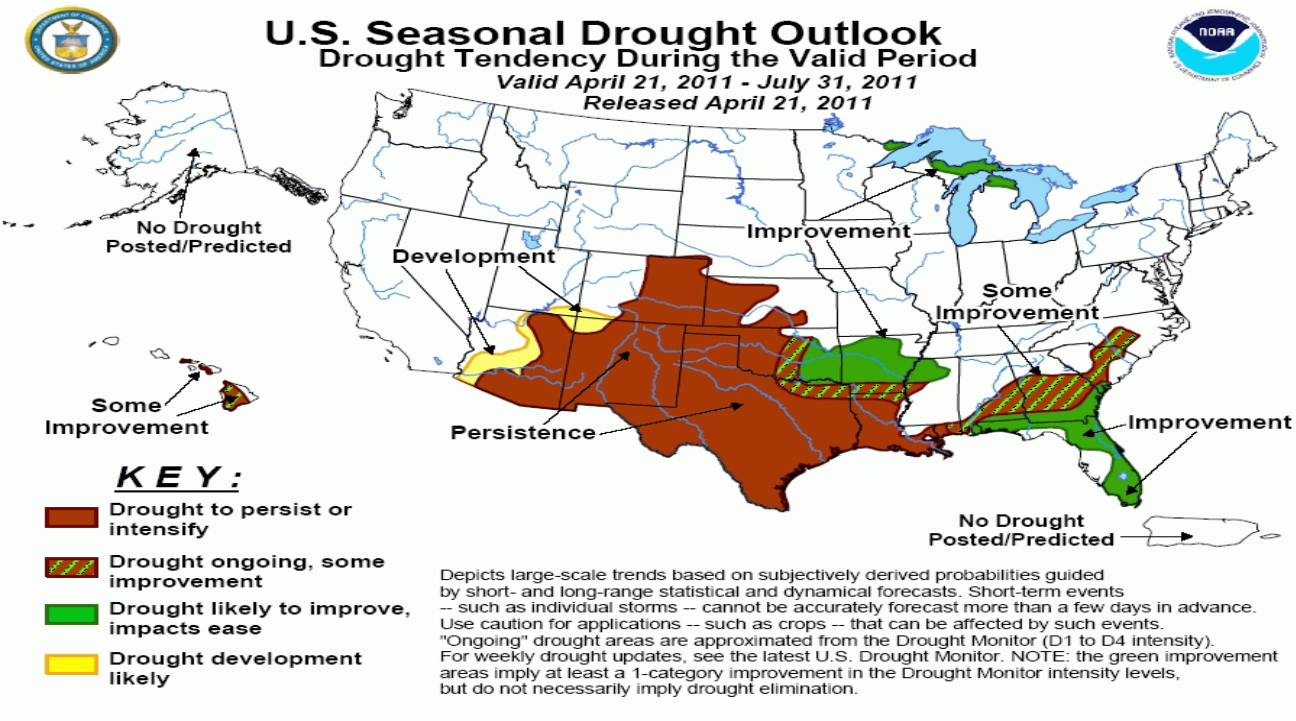


The current forecast calls for Neutral conditions to develop by June. The latest Summer forecast calls for above normal temperatures and equal chances of above, below or normal rainfall.

Drought Conditions Continue to Worsen

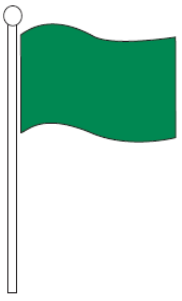
By Jack Cullen, Forecaster

Rainfall deficits continue to grow across portions of the central Gulf Coast. The latest drought monitor shows drought conditions exist mainly to the south and east of Interstate 65 with severe drought conditions across coastal Alabama and northwest Florida. Through the end of April, Mobile has recorded 12.08 inches of rain which is 11.21 inches below normal and Pensacola has recorded 14.67 inches, 5.76 inches below normal. The long range outlook calls for continued above normal temperatures and below normal precipitation, which will continue to cause drought conditions to deteriorate across the Gulf Coast.



For the latest beach forecast and conditions:

Surf Zone Forecast	**NWS Mobile**	http://www.srh.noaa.gov/mob/
Gulf Shores	(251) 968-8433	
Orange Beach	(251) 981-7873	
Pensacola Beach	(850) 932-7873	
Santa Rosa County	http://data2.santarosa.fl.gov/navarrebeach/	
Okaloosa County	http://www.co.okaloosa.fl.us/beach/beach_safety.asp	



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The Gulf Coast Rumbler

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Jack Cullen
Gene Jacobi

NOAA NWR Area Listings

KEC-61	Near Mobile, AL	162.550 MHz
KEC-86	Milton, FL	162.400 MHz
KIH-59	Dozier, AL	162.550 MHz
WNG-607	Greenville, AL	162.425 MHz
WNG-640	Leakesville, MS	162.425 MHz
WNG-646	Brewton, AL	162.475 MHz
WWF-55	Jackson, AL	162.500 MHz

Rip Current Safety

If caught in a Rip Current:

-Don't fight the current

-Swim out of the current, parallel to shore, then swim to shore

-If you can't escape, float or tread water

-If you need help, call or wave for assistance

-Know how to swim

-Never swim alone

-If in doubt, don't go out